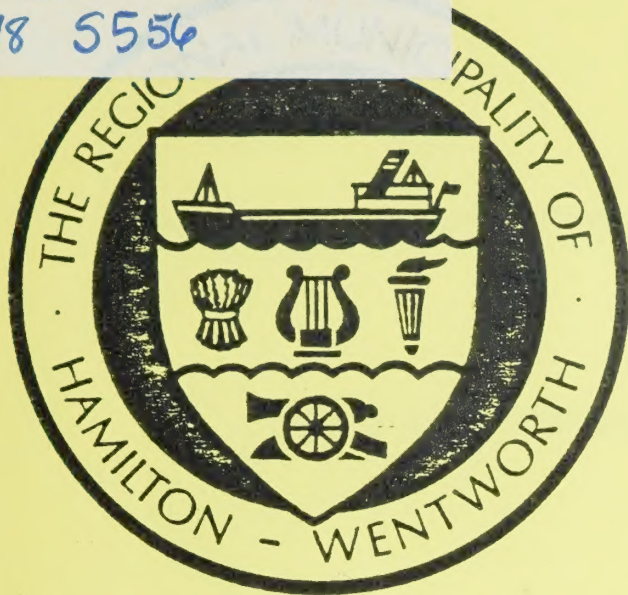


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The Regional Municipality of Hamilton-Wentworth

Solid Waste Management System

Existing Disposal Sites

July, 1978



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THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

SOLID WASTE MANAGEMENT SYSTEM

EXISTING DISPOSAL SITES

July, 1978

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1.0 INTRODUCTION

The problem of the disposal of solid waste in the Hamilton-Wentworth area was first recognized in the early 1960's. At that time and after considerable investigation and review the City of Hamilton decided to proceed with the construction of the incinerator with metal and energy recovery capabilities, now known as SWARU. This facility was completed in 1972.

In early 1971 the Waste Management Branch, Ontario Department of Energy and Resource Management, the County of Wentworth and the City of Hamilton agreed to proceed with a study of the disposal of solid waste in the Hamilton-Wentworth Area.

In a preliminary report dated May 1971 the Waste Management Branch, Ontario Department of Energy and Resource Management reviewed the various landfill sites then operating in the Hamilton-Wentworth area and prepared the following summary of the estimated life expectancy of the various sites:-

City of Hamilton	Ottawa St. Landfill Site	2 years
City of Hamilton	West End Site Landfill Site	2 years
Town of Dundas	Landfill Site	2 years
Township of Ancaster	Landfill Site	1 year
Township of Beverly	Landfill Site	2 to 5 years
Township of Binbrook	Landfill Site	1 to 3 years

Township of West Flamborough	Landfill Site	1 to 3 years
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Township of Glanford	Landfill Site	1 to 3 years
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Township of Saltfleet	Landfill Site	1 to 2 years
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In early 1972 Proctor & Redfern Limited were retained to carry out a detailed study of the disposal of solid waste in the Hamilton-Wentworth area.

On January 1, 1974 the Regional Municipality of Hamilton-Wentworth was established and assumed responsibility for the disposal of solid waste in the Region. This responsibility included the operation of SWARU and all existing landfill sites. In 1974 the Region retained Proctor & Redfern Limited to continue their study on the disposal of solid waste in the Region.

This report outlines the current status of all disposal sites assumed by the Region on January 1, 1974 and the current projected life expectancy of the existing landfill sites.

2.0 EXISTING DISPOSAL SITES

When the Regional Municipality of Hamilton-Wentworth was established on January 1, 1974 it assumed responsibility for the following waste disposal sites: -

a). SWARU

The East Hamilton Solid Waste Reduction Unit, commonly known as SWARU was constructed by the City of Hamilton in an attempt to alleviate the everincreasing problem of solid waste disposal. The plant was completed in 1972.

The plant has never reached its design capacity. The maximum annual throughput has been approximately 50,000 tons per year compared with an original design capacity of 210,000 tons per year. The plant is described in greater detail in Appendix 'A'.

Due to the nature of the process SWARU can not handle all of the different types of waste produced in the Region. The SWARU By-Law shown as Appendix 'B' details the types of waste that can be disposed of at SWARU.

Tricil Limited took over the operation of SWARU in February 1978 and are presently modifying the plant to bring it up to a guaranteed capacity of 120,000 tons per year.

b). UPPER OTTAWA STREET LANDFILL SITE, HAMILTON

This site which was originally an abandoned quarry had approximately 45 useable acres. Filling started in 1949. In 1971 the projected life expectancy was two years.

The height of this site has already exceeded the design elevation set in 1976. By March 1980 the height of this landfill site will be approximately 120 feet above Stone Church Road. At that time the site will have reached its maximum practical capacity.

This site is also used for the disposal of some inert wastes and liquid wastes. This site is now beginning to impose severe obnoxious effects on the surrounding urban development.

c). WEST END LANDFILL SITE (MACKLIN STREET), HAMILTON

This site was closed in the fall of 1974 when it had reached its ultimate capacity.

d). EAST END LANDFILL SITE (BRAMPTON STREET), HAMILTON

This site was closed in early 1974 when it had reached its ultimate capacity.

e). DUNDAS LANDFILL SITE (OLYMPIC DRIVE), DUNDAS

This site was closed in December 1976 when it had reached its ultimate capacity.

f). ANCASTER LANDFILL SITE (JERSEYVILLE ROAD), ANCASTER

This landfill site of approximately 50 acres is the second largest in the Region. The site was expanded in 1977 and now serves Ancaster, Dundas, and part of Flamborough.

This site will reach its final design grades by March 1980.

g). BEVERLY LANDFILL SITE (6TH CONCESSION), FLAMBOROUGH TOWNSHIP

This site is only one acre. The use of the site is restricted to private vehicles. No trucks are allowed due to the limited manouvering space and the limited available capacity. The current landfill certificate expires at the end of 1978.

h). BINBROOK LANDFILL SITE (FLETCHERS ROAD), GLANBROOK TOWNSHIP

This site is only one acre. The use of this site is restricted to private vehicles. No trucks are allowed due to the limited available capacity. The current landfill certificate expires at the end of June 1979.

- i). WEST FLAMBOROUGH LANDFILL SITE (EDGEWOOD ROAD),
FLAMBOROUGH TOWNSHIP

This site was closed in August 1977.

- j). GLANFORD LANDFILL SITE (CHIPPEWA ROAD), GLANBROOK TOWNSHIP

This site of approximately 1.5 acres has reached its ultimate capacity. It was recommended in 1974 and again in 1978 that this site be closed. At the request of the Township of Glanbrook the site remains open for the convenience of the residents of the Township.

- k). SALTFLEET LANDFILL SITE (6TH ROAD EAST), STONEY CREEK

This site of 10 acres has now reached its ultimate capacity. It was closed to municipal trucks and packer vehicles in August 1976. The public will continue to use it until the end of August 1979 when the current Ministry of the Environment certificate expires.

The location of these landfill sites and SWARU are shown on Drawing No. 1.

The following landfill sites are therefore still open as of July 1978 with life expectancy as shown below: -

City of Hamilton

Ottawa Street
Landfill Site

20 months

Town of Ancaster	Landfill Site	20 months
Township of Flamborough	Beverly Site	Nil
Town of Stoney Creek	6th Road East Site	Nil
Township of Glanbrook	Fletchers Road	Nil
Township of Glanbrook	Chippewa Road	Nil

3.0 CONCLUSIONS

The Regional Municipality of Hamilton-Wentworth will run out of landfill space by March 1980.

Immediate action should be taken to acquire a new landfill site and to obtain all necessary approvals so that this site can be ready and operational by March 1980.

APPENDIX 'A'

SWARU

The East Hamilton Solid Waste Reduction Unit, commonly known as SWARU, was completed by the City of Hamilton in 1972 prior to the establishment of the Regional Municipality of Hamilton-Wentworth.

The plant, which is basically an incinerator, contains many innovative design features. It has the capability of recovering ferrous metals and producing steam from the wastes. The original design capacity of the plant was 210,000 tons per year. Due to a number of problems the actual capacity has never exceeded 50,000 tons per year.

The SWARU plant consists of the following: -

- a receiving facility including weigh scales
- a live bottom storage pit where the incoming waste is dumped and stored until required.
- a conveyor system to take the waste from the pit to the pulverisors.
- pulverisors in which the waste is reduced in size to approximately 2" to 4" in size.

- magnetic separation of the ferrous metals coming out of the pulverisers.
- two incinerators in which the pulverised waste is burned and steam is produced.

A schematic process flow chart is shown on Page 11.

The net result of the process is the conversion of solid waste to ferrous scrap, steam and a sterile ash having less than 10% of the original volume. Due to problems with the operation of the plant it has not been possible to establish a market for the steam. The recovered ferrous metal amounting to about 3 to 4% of the total waste has been sold to a local industry for detinning and subsequent recycling.

Tricil Limited assumed operation of the plant in February 1978. The plant is being modified and when modifications are complete there should be a substantial increase in capacity.

This plant should provide a substantial contribution to the waste disposal problem in the Hamilton-Wentworth area. It will enable the recovery of ferrous metals and when working consistently will permit the development of markets for the sale of the steam.

Due to the nature of the process SWARU can only handle certain types of waste. These wastes are detailed in the SWARU By-Law shown in Appendix 'B'.

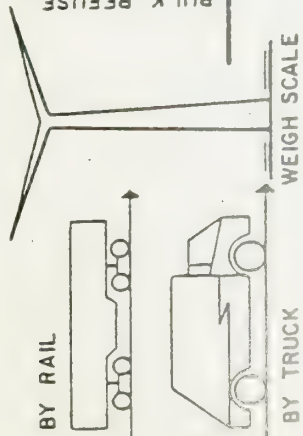
PRIVATE AND
MUNICIPAL
REFUSE

BY RAIL

BY TRUCK

BULK
STORAGE
AND
SEPARATION

BULK
PULVERISER



BULK REFUSE

MIXED, FINE OR
PARTIALLY PROCESSED
SUBURBAN REFUSE

REFUSE

VALUABLES
SEPARATION

PULVERISER

VALUABLES
SEPARATION

REJECTED
REFUSE

MAGNETIC
SEPARATION

MAGNETIC METALS

AUXILIARY FUEL

BUILDING VENTILATION
OUTSIDE AIR

COOLED GASES

ELECTROSTATIC
PRECIPITATORS

CLEAN
GASES

STABILIZATION

MAKE-UP
WATER
TREATMENT

FEED WATER

SUPER
HEATED STEAM

AIR HEATER,
BOILERS AND
SUPERHEATERS

ASH

TURBOGENERATORS

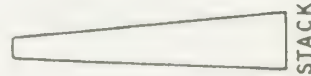
ASH

VALUABLES
SEPARATION

CLEAN FILL

STEAM ELECTRIC POWER

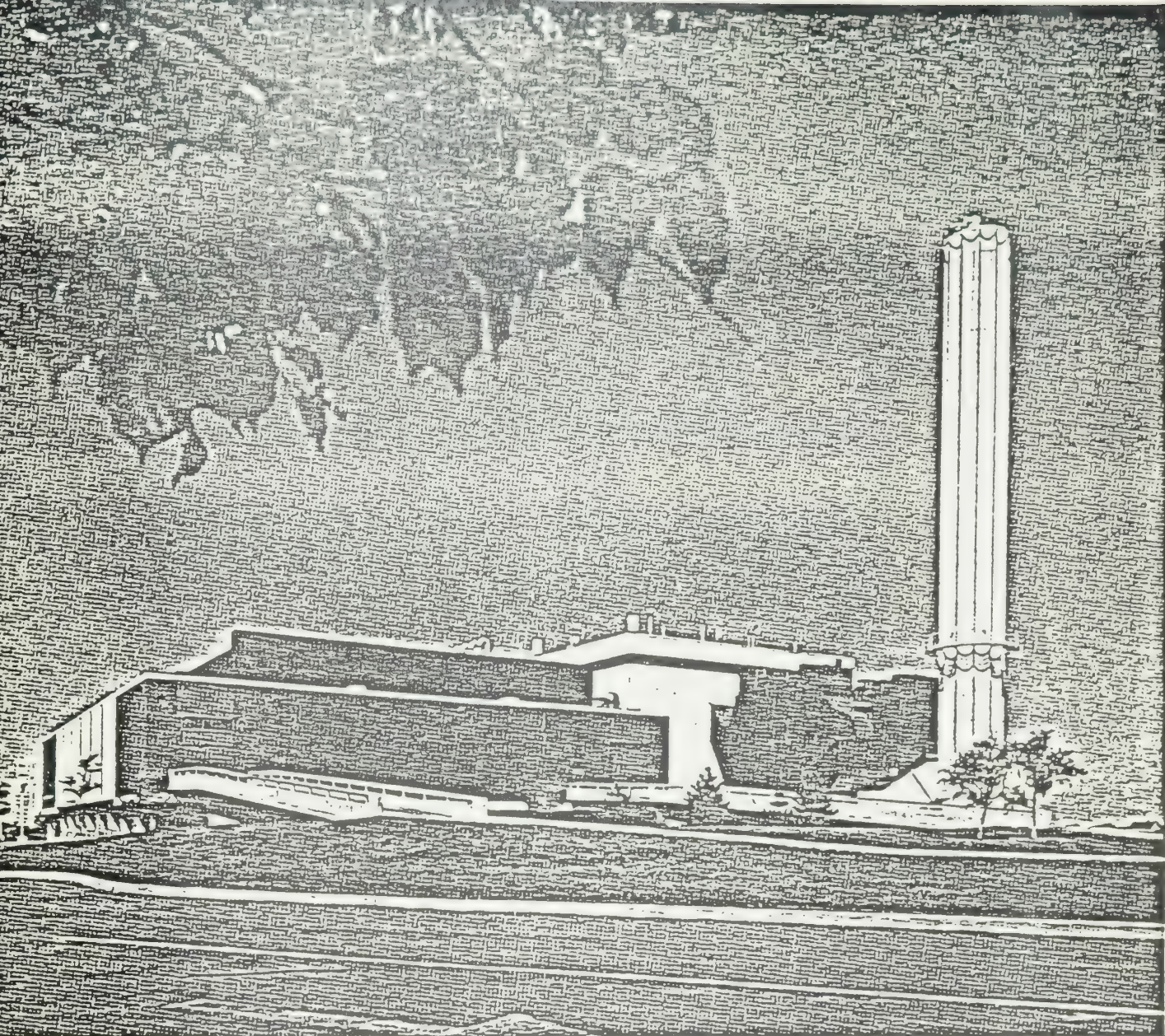
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MATERIAL



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FUEL STORAGE

Waste Disposal - Resource Recovery System



View of the Solid Waste Recovery Unit (SWARU) in operation at Hamilton, Ontario.

Data Sheet

Owner:	Regional Municipality of Hamilton-Wentworth
Location:	Kenora Avenue, Hamilton, Ontario, Canada
Cost:	Canadian \$8,250,000 (1972)
Capacity:	600 tons per 24 hour day
Steam Generation:	210,000 lbs. per hour based on refuse at 6,000 BTU/lb. 250 psi saturated

APPENDIX 'B'

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

BY-LAW NO. R78-4

BEING A BY-LAW TO REGULATE THE TYPE OF WASTE TO BE
DISPOSED OF AT S.W.A.R.U.

WHEREAS it is provided by The Regional Municipality of Hamilton-Wentworth Act, 1973, c. 74, Section 131 (2) that "the Regional Corporation shall provide facilities for the purpose of receiving, dumping and disposing of waste" and further in Section 131 (3) thereof "the Regional Corporation may prohibit or regulate the dumping and disposing of waste."

NOW THEREFORE the Council of The Regional Municipality of Hamilton-Wentworth enacts as follows: -

1. INTERPRETATION

- a. "Commissioner" means the Commissioner of Engineering Services of The Regional Municipality of Hamilton-Wentworth.
- b. "Region" means The Regional Municipality of Hamilton-Wentworth.
- c. "S.W.A.R.U." means the "Solid Waste Reduction Unit" located on Kenora Avenue in the City of Hamilton.
- d. "user" means any person or persons either employed by an area municipality within the Region or employees of a municipal contractor acting as an agent for an area municipality, plus professional waste haulers approved by the Region.
- e. "domestic waste" includes household garbage consisting of kitchen and table waste of animal or vegetable origin, resulting from preparation of food in a dwelling or housing unit, plus household refuse consisting of rubbish, discarded materials, clothing, waste paper, broken crockery and

1. e. continued.....

glassware, bottles, cans, grass cuttings, garden refuse and other articles associated with a residential unit and equivalent waste from apartment buildings, restaurants, offices, shopping plazas, stores and the like.

2. ADMINISTRATION AND ENFORCEMENT

The administration and enforcement of this By-Law is the duty of the Commissioner of Engineering Services of the Region.

3. TYPES OF WASTE

No user shall dispose of or attempt to dispose of solid waste at S.W.A.R.U. except in accordance with the following:

(i) Acceptable at S.W.A.R.U.

- a. domestic waste
- b. confidential papers for destruction

(ii) Non-acceptable at S.W.A.R.U.

- a. carpets;
- b. furniture;
- c. white goods, e.g. stoves, refrigerators, major appliances;
- d. tires and wheels and car parts;
- e. bicycles and parts thereof;
- f. wire, wire mesh and fencing;
- g. swimming pool covers;
- h. wood in excess of 4 feet in length, wooden boxes, barrels;
- i. earth, rock and concrete;

3. (ii) continued.....

- j. mattresses and bed springs;
- k. discarded plumbing - sinks, toilet bowls and seats, fittings, pipe, hot water tanks, etc.;
- l. trees and tree stumps;
- m. wood brush unless tied in bundles 4 feet in length or shorter;
- n. steel barrels;
- o. construction and demolition materials;
- p. all pieces of metal weighing more than five pounds;

4. USERS

Access to S.W.A.R.U. is restricted to Area Municipality collection vehicles or vehicles of their collection agents or contractors engaged in domestic waste pick-up for an Area Municipality of the Region, and Regional transfer trailer vehicles, and other vehicles authorized by the Commissioner in compliance with this By-Law.

5. MISCELLANEOUS

- a. All users of S.W.A.R.U. for disposal shall obey the signs at the plant and comply with the directions of the staff on duty.
- b. All loads must be properly covered and contained by tarpaulins or a suitable alternative, in order to be accepted for disposal.
- c. Vehicles belonging to the Region or an Area Municipality or their agents, shall not be charged for domestic waste at S.W.A.R.U. when such wastes are being picked up for a Municipality or the Region. Agents or contractors may be required to furnish proof, on demand, to the S.W.A.R.U. staff that they are in fact engaged in the haulage of municipal wastes for an Area Municipality within the Regional Area and that the domestic wastes being disposed of at S.W.A.R.U. pertain to a Municipal contract.

6. PENALTY

Every person who contravenes any provision of this By-Law commits an offence and is punishable on Summary Conviction and shall be liable to a fine of not less than \$100.00 and not more than \$1,000.00 exclusive of costs, and every day such contravention continues shall constitute a separate offence.

PASSED AND ENACTED this day of 1978.

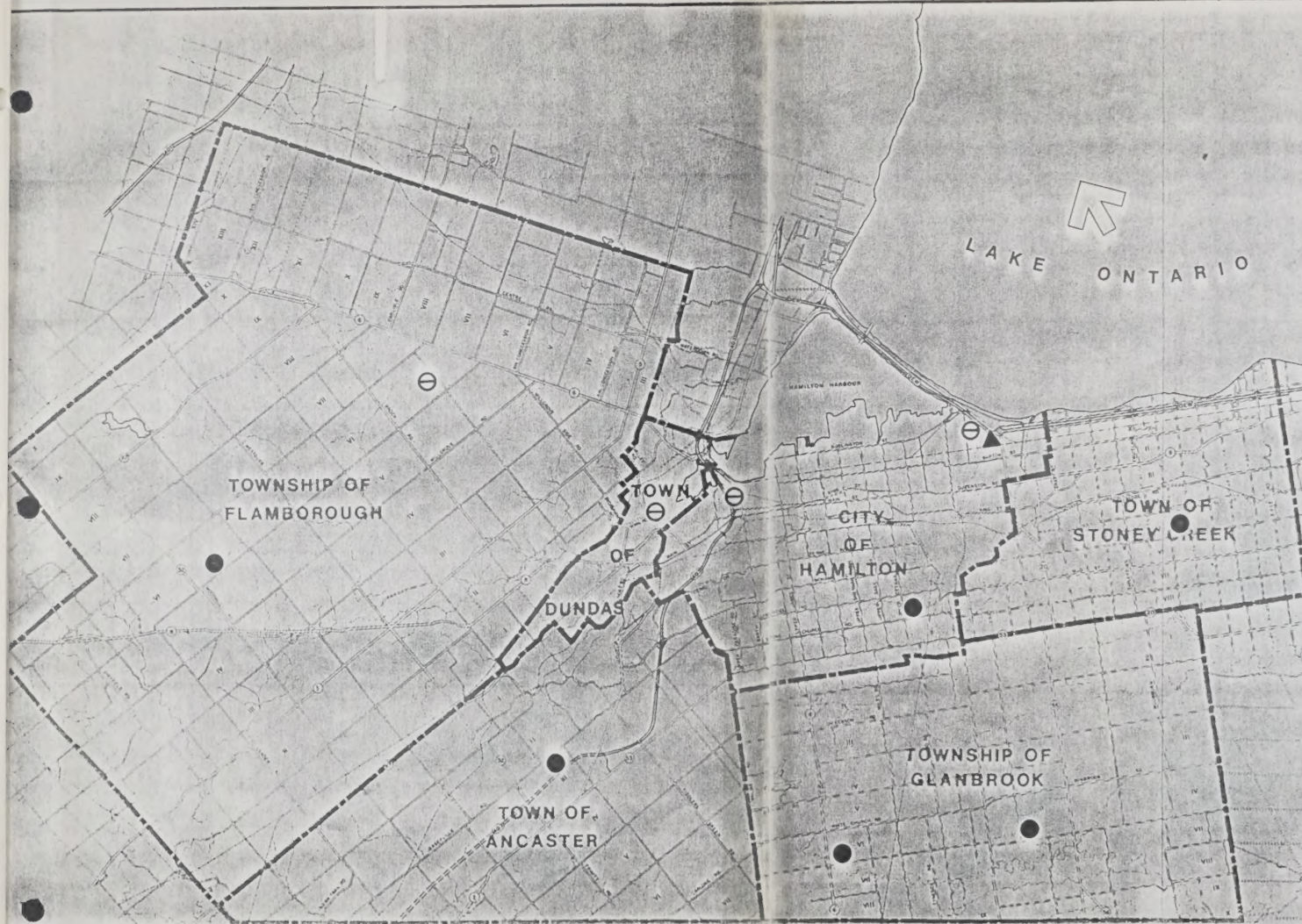
Chairman

Clerk

Solid Waste Management System

Legend

- ⊖ Landfill Sites taken over in 1974 (Presently closed)
- Landfill Sites taken over in 1974 (Still in operation)
- ▲ Existing S.W.A.R.U. Plant



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